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EXAMINER

QUAN, ELIZABETH S

ART UNIT

PAPER NUMBER

1743

DATE MAILED: 07/02/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/694,130

Applicant(s)

HIROTA ET AL.

Examiner

Elizabeth Quan

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-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 April 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 and 31 is/are pending in the application.
- 4a) Of the above claim(s) 1-6, 13 and 14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 7-12 and 31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 7 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,461,812 to Barth et al. in view of U.S. Patent No. 6,251,343 to Dubrow et al.

Referring to claims 7 and 31, Barth et al. disclose a dispenser (10) comprising a plurality of arranged micropipettes as defined by the reservoirs (22) (see FIGS. 1A and 1B; COL. 6, lines 40-43 and 60-67). Each micropipette includes a pouring port (21) for pouring a sample solution from the outside, a cavity (17) in communication with the pouring port (21) for pouring and charging the sample solution, and a discharge port (14) in communication with the cavity (17) for discharging the sample solution (see FIG. 1C; COL. 2, lines 12-42). Each of the micropipettes is formed from at least one substrate (12,20,18,16,19) (see FIGS. 1A-1C). The micropipette includes a piezoelectric/electrostrictive element (24) on a wall surface (26) of the at least one substrate (12,20,18,16,19) that forms the cavity (17) so that the sample solution is movable in the cavity (17) and discharged from the discharge port (14) of each of the micropipettes (see FIGS. 1A-1C). The opening provided by the pouring port (21) forms a holding section for holding a pipette for pouring the solution from the pouring port (21) (see FIG. 1C).

Barth et al. do not disclose the holding section being attached on an outer portion of the substrate at or proximate a circumferential edge of the pouring port. However, Dubrow et al. disclose a holding section (208) attached on an outer portion (202) of a substrate (200) at or proximate the circumferential edge of a pouring port (206) (see FIGS. 2A-2F, 3A; COL. 9, lines 60-62). The holding section (208) provides a barrier between neighboring reservoirs and increases the effective volume of each reservoir in the device (see FIGS. 2A-2F, 3A; COL. 9, lines 62-65). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to

modify the device of Barth et al. to provide a holding section attached on an outer portion of a substrate at or proximate the circumferential edge of a pouring port as in Dubrow et al. to provide a barrier between neighboring reservoir and increase the effective volume of each reservoir in the device.

Barth et al. do not disclose the holding section including a tube for receiving the pipette. However, Dubrow et al. disclose a holding section (208) including a tube (256), (258), or (264) (see FIG. 2F; COL. 11, lines 56-67; COL. 12, lines 1-27). The tube (256), (258), or (264) sealably fits over the reservoir while not contacting the fluid contained therein (see FIG. 2F; COL. 11, lines 56-67; COL. 12, lines 1-27). The pipette is positioned within the tube (256), (258), or (260) to apply pressure to reservoir (106) without contacting the fluid within the reservoir (see FIG. 2F; COL. 11, lines 56-67; COL. 12, lines 1-27). This would be an excellent modification to the device of Barth et al., as it would push the fluid down into the areas affected by the piezoelectric/electrostrictive element for discharge through the discharge port. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify device of Barth et al. to provide a tube with the holding section as in Dubrow et al. to apply pressure to the reservoir without contacting the fluid within the reservoir to push the fluid down into the areas affected by the piezoelectric/electrostrictive element for discharge through the discharge port.

5. Claims 8 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,461,812 to Barth et al. in view of U.S. Patent No. 6,251,343 to Dubrow et al. as

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applied to claims 7 and 31 above, and further in view of U.S. Patent No. 5,948,695 to Douglas et al. or U.S. Patent No. 6,042,219 to Higashino et al. or U.S. Patent No. 6,312,115 to Hara et al.

Referring to claims 8 and 12, Barth et al. in view of Dubrow et al. do not explicitly disclose that the pouring port or inner wall of the tube is subjected to hydrophilic treatment. However, it is very well known to make the pouring port or inner wall of the tube from hydrophilic materials or coat the pouring port or inner wall of the tube with hydrophilic coating to ease the flow of liquid into and through the pouring port or inner wall of the tube. Douglas et al. disclose that the tube is molded from materials with hydrophilic properties, such that liquid can be easily drawn through the tube (see ABSTRACT; COL. 7, lines 65-67; COL. 8, lines 1-4). Higashino et al. disclose that a hydrophilic coating is provided in the vicinity of the inlet to ensure smooth entering of the fluid into the reservoir (see COL. 5, lines 8-11). Hara et al. disclose that the inner surface of the supply port is treated to increase the hydrophilic properties thereof to ease the flow of fluid into the reservoir (see COL. 4, lines 57-60; COL. 7, lines 15-19; CLAIM 8). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Barth et al. in view of Dubrow et al. to make the pouring port or inner wall of the tube hydrophilic as in Douglas et al. or Higashina et al. or Hara et al. such that liquid flows smoothly through the tube or port.

6. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,461,812 to Barth et al. in view of U.S. Patent No. 6,251,343 to Dubrow et al. as applied to claims 7 and 31 above, and further in view of U.S. Patent No. 6,312,115 to Hara et al. and/or Gautsch.

Referring to claim 9, Barth et al. in view of Dubrow et al. do not disclose a scale for measuring an amount of liquid poured into the tube formed at least on a part of the tube for receiving the pipette. However, it is very well known to have a scale to measure and dispense a certain amount of liquid. Furthermore, it appears that the Applicant's scale are lines on the tube designating a certain amount of liquid. Gautsch discloses a scale for accurately and precisely measuring an amount of liquid poured into the tube (see ABSTRACT; FIG. 2A). Hara et al. show marks on the exterior of the tube, such as the rib (124) and the transition region between region (117) and region (116), that is a suitable scale for measuring or determining the amount of liquid to dispense into the tube (see FIG. 5). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Barth et al. in view of Dubrow et al. to provide a scale on the tube as in Gautsch and/or Hara et al. to accurately and precisely measure and dispense a certain amount of liquid.

7. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,461,812 to Barth et al. in view of U.S. Patent No. 6,251,343 to Dubrow et al. as applied to claims 7 and 31 above, and further in view of U.S. Patent No. 6,086,193 to Shimada et al.

Referring to claim 10, Barth et al. in view of Dubrow et al. do not disclose projections on the inner wall of the tube spaced apart substantially the same axial distance from the pouring port. Shimada et al. show projections on the inner wall of the tube spaced apart substantially the same axial distance from the pouring port (see FIGS. 7 and 8). The pipette or other dispensing means are hermetically inserted into the inlet port, such that the liquid is not exposed to or leaked into the ambient atmosphere (see COL.

12, lines 64-67; COL. 13, lines 1-29). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Barth et al. in view of Dubrow et al. to provide the projections as in Shimada et al. to hermetically insert the dispensing means.

8. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,461,812 to Barth et al. in view of U.S. Patent No. 6,251,343 to Dubrow et al. as applied to claims 7 and 31 above, and further in view of U.S. Patent No. 5,409,138 to Nakano.

Referring to claim 11, none of the references cited explicitly disclose a filter with a large number of openings defining an opening area on the surface of the filter, such that the opening area has a surface area that is not larger than the opening area of the discharge port. Nakano discloses that a filter (30) attached to portions of the at least one substrate and holding section that has a large number of openings defining an opening area on the surface of the filter, and the opening area has a surface area that is not larger than the opening area of the discharge port (16) (see COL. 3, lines 49-68; COL. 4, lines 1-5). It has been interpreted that infinite openings make up the opening area or mesh opening, which is 10 microns, that is sufficiently smaller than the 50 micron diameter of the discharge port (16) (see COL. 3, lines 49-68; COL. 4, lines 1-5). The filter removes contaminants, such as dust, and causes a holding effect (see COL. 3, lines 49-68; COL. 4, lines 1-5). The overall effect is rapid ejection of liquid without dust (see COLS. 1 and 2). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Barth et al. in view of Dubrow et al. to provide a filter with a large number of openings defining an opening area that is not

larger than the opening area of the discharge port as in Nakano to effectively eject liquid without dust.

9. Claims 7, 8, 12, and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,461,812 to Barth et al. in view of U.S. Patent No. 6,312,115 to Hara et al.

Referring to claims 7, 8, 12, and 31, Barth et al. disclose a dispenser (10) comprising a plurality of arranged micropipettes as defined by the reservoirs (22) (see FIGS. 1A and 1B; COL. 6, lines 40-43 and 60-67). Each micropipette includes a pouring port (21) for pouring a sample solution from the outside, a cavity (17) in communication with the pouring port (21) for pouring and charging the sample solution, and a discharge port (14) in communication with the cavity (17) for discharging the sample solution (see FIG. 1C; COL. 2, lines 12-42). Each of the micropipettes is formed from at least one substrate (12,20,18,16,19) (see FIGS. 1A-1C). The micropipette includes a piezoelectric/electrostrictive element (24) on a wall surface (26) of the at least one substrate (12,20,18,16,19) that forms the cavity (17) so that the sample solution is movable in the cavity (17) and discharged from the discharge port (14) of each of the micropipettes (see FIGS. 1A-1C). The opening provided by the pouring port (21) forms a holding section for holding a pipette for pouring the solution from the pouring port (21) (see FIG. 1C).

Barth et al. do not disclose the holding section being attached on an outer portion of the substrate at or proximate a circumferential edge of the pouring port. However, Hara et al. disclose a holding section attached on an outer portion of a substrate at or proximate the circumferential edge of a pouring port (see FIGS. 3 and 5). The holding

section provides a barrier between neighboring reservoirs and increases the effective volume of each reservoir in the device (see FIGS. 3 and 5). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Barth et al. to provide a holding section attached on an outer portion of a substrate at or proximate the circumferential edge of a pouring port as in Hara et al. to provide a barrier between neighboring reservoir and increase the effective volume of each reservoir in the device.

Barth et al. do not disclose the holding section including a tube for receiving the pipette. However, Hara et al. disclose a holding section including a tube (115) (see FIGS. 3 and 5). The tube (115) sealably fits over the reservoir while not contacting the fluid contained therein (see FIGS. 3 and 5). The pipette is positioned within the tube (115) to apply pressure to prevent leakage (see FIGS. 3 and 5; COL. 4, lines 57-67; COL. 5, lines 1-8). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify device of Barth et al. to provide a tube with the holding section as in Hara et al. to prevent leakage.

Barth et al. do not explicitly disclose that the pouring port or inner wall of the tube is subjected to hydrophilic treatment. However, it is very well known to make the pouring port or inner wall of the tube from hydrophilic materials or coat the pouring port or inner wall of the tube with hydrophilic coating to ease the flow of liquid into and through the pouring port or inner wall of the tube. Hara et al. disclose that the inner surface of the supply port is treated to increase the hydrophilic properties thereof to ease the flow of fluid into the reservoir (see COL. 4, lines 57-60; COL. 7, lines 15-19; CLAIM

8). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Barth et al. to make the pouring port or inner wall of the tube hydrophilic as in Hara et al. such that liquid flows smoothly through the tube or port.

10. Claim 7, 10, 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,461,812 to Barth et al. in view of U.S. Patent No. 6,086,193 to Shimada et al.

Referring to claims 7, 10, and 31, Barth et al. disclose a dispenser (10) comprising a plurality of arranged micropipettes as defined by the reservoirs (22) (see FIGS. 1A and 1B; COL. 6, lines 40-43 and 60-67). Each micropipette includes a pouring port (21) for pouring a sample solution from the outside, a cavity (17) in communication with the pouring port (21) for pouring and charging the sample solution, and a discharge port (14) in communication with the cavity (17) for discharging the sample solution (see FIG. 1C; COL. 2, lines 12-42). Each of the micropipettes is formed from at least one substrate (12,20,18,16,19) (see FIGS. 1A-1C). The micropipette includes a piezoelectric/electrostrictive element (24) on a wall surface (26) of the at least one substrate (12,20,18,16,19) that forms the cavity (17) so that the sample solution is movable in the cavity (17) and discharged from the discharge port (14) of each of the micropipettes (see FIGS. 1A-1C). The opening provided by the pouring port (21) forms a holding section for holding a pipette for pouring the solution from the pouring port (21) (see FIG. 1C).

Barth et al. do not disclose the holding section being attached on an outer portion of the substrate at or proximate a circumferential edge of the pouring port. However,

Shimada et al. disclose a holding section attached on an outer portion of a substrate at or proximate the circumferential edge of a pouring port (see FIGS. 7-10). The holding section provides a barrier between neighboring reservoirs and increases the effective volume of each reservoir in the device (see FIGS. 7-10). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Barth et al. to provide a holding section attached on an outer portion of a substrate at or proximate the circumferential edge of a pouring port as in Shimada et al. to provide a barrier between neighboring reservoir and increase the effective volume of each reservoir in the device.

Barth et al. do not disclose the holding section including a tube for receiving the pipette. However, Shimada et al. disclose a holding section including a tube (see FIGS. 7-10). The tube sealably fits over the reservoir while not contacting the fluid contained therein (see FIGS. 7-10). The pipette is positioned within the tube to apply pressure to prevent leakage (see FIGS. 7-10; COL. 12, lines 64-67; COL. 13, lines 1-29). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify device of Barth et al. to provide a tube with the holding section as in Shimada et al. to prevent leakage.

Referring to claim 10, Barth et al. do not disclose projections on the inner wall of the tube spaced apart substantially the same axial distance from the pouring port.

Shimada et al. show projections on the inner wall of the tube spaced apart substantially the same axial distance from the pouring port (see FIGS. 7 and 8). The pipette or other dispensing means are hermetically inserted into the inlet port, such that the liquid is not

exposed to or leaked into the ambient atmosphere (see COL. 12, lines 64-67; COL. 13, lines 1-29). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Barth et al. in view of Dubrow et al. to provide the projections as in Shimada et al. to hermetically insert the dispensing means.

Response to Arguments

11. Applicant's arguments with respect to claims 7-12 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. They include one or more limitations in the claims.

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elizabeth Quan whose telephone number is (703) 305-1947. The examiner can normally be reached on M-F (8:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on (703) 308-4037. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Elizabeth Quan
Examiner
Art Unit 1743

eq
June 30, 2003


Jill Warden
Supervisory Patent Examiner
Technology Center 1700